

## **Back Bay National Wildlife Refuge 2001 Marshbird Callback Survey**

2001 Data  
Entered  
into Census

### **Survey Method**

#### **Dike route**

Last year's selection of a series of 18 points chosen to give a continuous series of points along the refuge impoundments was again used this year. The 18 sites on the survey begin just south of the headquarters complex, proceed along the west dike past the entrance to False Cape State Park, and come back along the east dike with one site on the south cross dike. Each site was easy to relocate since the latitude and longitude of each site had been marked with a GPS reading from a Magellan GPS 315. A copy of GPS readings for each of those sites as well as the map of the route used in the 18 site 2000 survey is included in this report since the sites are identical to those used last year. No new habitat site maps were created for this route, since the habitat has not changed appreciably since last year.

The route was surveyed by bicycle as it was last year. No difficulties with this method were encountered. The official ten minute Coastal Callback tape was again used with the boom box. The official callback evaluation form was also used this year. Each survey was covered in approximately four and one-half hours. The dates of the surveys were May 1, May 23, and June 6, 2001. The first and the third surveys were covered from point 1 to point 18, while the second survey was covered in reverse order, from point 18 to point 1. The start times for all surveys was early morning, and all the surveys met the recommended weather criteria. I was the only observer for each survey.

#### **North Bay route**

A new canoe-based route was laid out to survey the northern section of the refuge. The route begins at the canal near Sandbridge Realty on Sandbridge road, progresses south along the canal, into Hell Point Creek, out into North Bay and east toward Sandbridge beach. The Magellan GPS 315 was used to choose the sites insuring that each site was at least 400m from the previous site. The longitude and latitude of each site was recorded. A table of these data is included as well as a map of the area showing the location of the sites.

The route was surveyed by electric motor powered canoe on May 15, May 31, and June 19, 2001. The canoe was the property of BBNWR, but the electric motor was loaned to the surveyor for the surveys. Because of the longer travel time between points as compared to the dike route, only 14 sites were visited during each of the survey. All three surveys were covered from point 1 to point 14 with no surveys run in the reverse direction. The start time for all the

surveys was early morning, and all the surveys met the recommended weather criteria. On the first and last survey I was assisted by Rachel Cliche of the BBNWR staff. On the second survey John Gallegos accompanied me and pointed out the more important plant communities present at each site.

## Results

The results of each of the surveys is given in the appendix along with the original data sheets. There are no new habitat site maps for the dike route. The habitat site maps for the North Bay route are included with the original data sheets.

### Dike Route

The cumulative list of species recorded for this route for the two survey years is 107 species. The significant increase in this total is due to the inclusion of an early May survey in 2001, which allows more migrants to be recorded. The total number of individuals recorded for each of the target species is as follows with the first number indicating this year's total and the second number last year's total: King Rail (24, 25), Virginia Rail (1, 0), American Coot (2, 14), Pied-billed Grebe (9, 18), Sora (10, 1), Wood Duck (23, 31), Common Moorhen (1, 3), Least Bittern (8, 5). In addition 2 American Bitterns were recorded on the early May survey. The impact of instituting the early May survey is also apparent in the numbers for Sora, and Virginia Rail was only recorded on the early May survey. Least Bittern was recorded this year on all three surveys in about equal numbers. Common Moorhen was recorded only on the first survey. There were no observations of or responses from Black Rail. A summary of each of the three surveys is included in a table in the appendix.

A brief analysis of the callbacks shows that of the target species, only King Rail and Sora responded well during taped calls of their own species, although the correlation is far from perfect. Several other target species gave callbacks that were not well correlated with the species' taped call. These numbers are summarized in table in the appendix.

### North Bay route

A total of 56 species were observed on this new route. This number is significantly lower than the 83 species recorded during the first year of the dike route survey. This difference results primarily from the difference in the varieties of habitats along the two routes, being much less varied along the North Bay route. Of more importance to this survey, however, is that only two of the target species were recorded during the three canoe surveys. The total number of individuals for those two species were: 14 Least Bittern and 5 King Rails. It should be noted that even though there are only 14 points on this route, the number of Least Bitterns is higher than that of the 18 point dike route. The Least Bitterns seem to make good use of the *phragmites*



which grows in abundance along this route. A summary of each of the three surveys is included in a table in the appendix.

## **Recommendations**

My recommendations for next year are to continue both the 18 point dike route survey and the 14 point North Bay route survey. I think three surveys are adequate for each route, but since there are only 14 points in the North Bay route, it may have to be run an additional year to gather enough data to satisfy the statistical criteria. Next year both surveys will be run using a schedule which begins with the first survey around May 1 to increase the chances of sampling migrant marshbirds like Sora, Virginia Rail, and American Bittern. The second survey should be during late May and the last during mid June.

For the dike route survey the issuance of a passkey to get onto the refuge before it is officially opened worked out very well.

Although a nighttime survey was not attempted in 2001, I think it is important to include one for each survey route next year. It should be run around May 1 to probe for the presence of Black Rails.

The major problem encountered this year was in trying to complete an 18 point canoe survey in a reasonable length of time. Because of the travel time required between points, only 14 points were included in the North Bay route. The logistics for launching the canoe were also a problem since two people were required for the launch. The canoe used was adequate, if heavy. However, the refuge needs to budget for and purchase an electric motor and backup for the canoe as well as the batteries necessary to power it. It was not possible this year to run the North Bay route in the reverse direction because there was no easy access to launch the canoe. Next year a convenient access point for the canoe needs to be found near the northeast end of the present route so the route can be run in reverse to meet the specifications of the protocol.

The biggest problem with the survey has to do with how accurately the census gives an indication of the population of the target marshbirds. The tape helps locate and census some species, but is of little value for others. For example although King Rails will call in response to their own call, they will respond as well as to the calls of other rails or simply call on their own. Least Bitterns, on the other hand, respond less well to the tape than do the King Rails. Most of the Least Bitterns counted were either actually seen, usually in flight, or were simply calling on their own. In a couple of instances, their calling was stopped by the tape playback. The ultimate question is how to extrapolate these counts to get a figure for the refuge's marshbird population

## Summary of Marshbird Callback Survey - 2001

### Dike Route

	Survey 1	Survey 2	Survey 3
Date of survey	5/1/01	5/23/01	6/6/01
# points surveyed	18	18	18
Starting time	05:45:00	05:40:00	05:35:00
Ending time	10:35:00	10:30:00	10:11:00
Route direction	N-S	S-N	N-S
Wind	W 3-5	N 5-7	WSW 3-5
Cloud cover	0%	50%	50%
Starting temp	58F	70F	70F
Ending temp	74F	68F	79F
Pied-billed Grebe	6	3	
American Bittern	2		
Least Bittern	3	2	3
Wood Duck	6	9	8
King Rail	8	6	10
Virginia Rail	1		
Sora	10		
Common Moorhen	1		
American Coot	2		
Total num spec seen	75	64	59

### North Bay Route

	Survey 1	Survey 2	Survey 3
Date of survey	5/15/01	5/31/01	6/19/01
# points surveyed	14	14	14
Starting time	06:00:00	06:05:00	06:09:00
Ending time	10:38:00	10:18:00	10:08:00
Route direction	N-S	N-S	N-S
Wind	NNW 3-5	N-E 5-7	E 3
Cloud cover	30-50%	10-30%	0-10%
Starting temp	52F	55F	na
Ending temp	na	70F	na
Least Bittern	1	9	4
Wood Duck			
King Rail	1	3	1
Sora			
Common Moorhen			
American Coot			
Total num spec seen	38	37	36



## Summary of responses by target species to Coastal Callback Tape

### Dike Route

	Responded during passive period	Responded to taped call of its own species	Responded to taped call of another species	Recorded visually with no vocalization
Pied-billed Grebe	1	2		6
American Bittern			1	1
Least Bittern	5	1	1	1
King Rail	6	9	5	4
Virginia Rail		1		
Sora		6	4	
Common Moorhen				1
American Coot	2			

### North Bay Route

	Responded during passive period	Responded to taped call of its own species	Responded to taped call of another species	Recorded visually with no vocalization
Least Bittern	5		2	7
King Rail	1	1	3	

# Survey Points - Marshbird Callback

1999 1a, 2a etc

2000 ①, ② etc

2001 same as 2000

Atlantic Ocean

**BACK BAY**

National Wildlife Refuge

Virginia Beach, Virginia

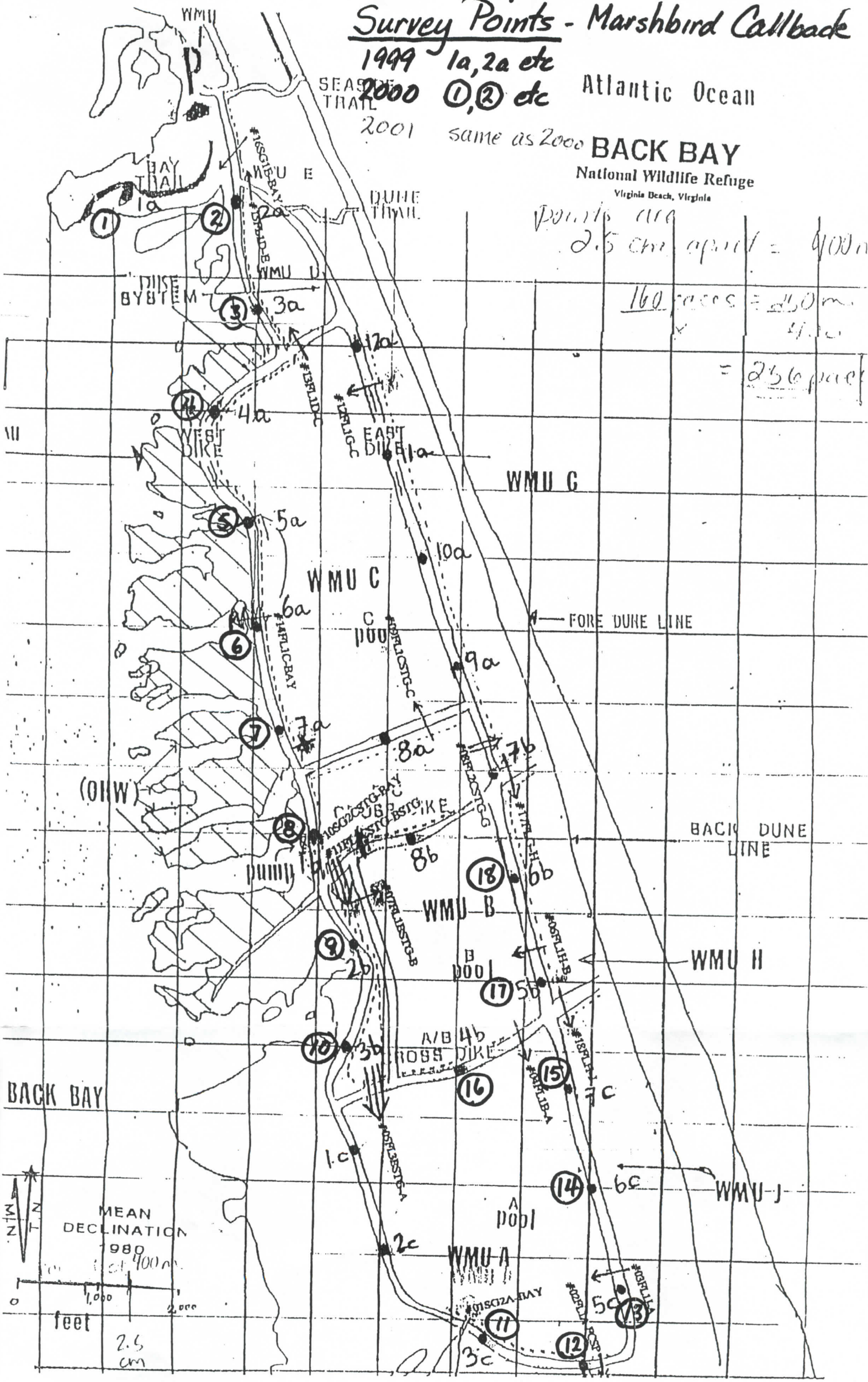
Points are

2.5 cm apart = 400m

160 paces = 250m

430

= 236 paces





## GPS Locations of 2001 Marshbird Callback - Dike Route

Site #	Description	GPS #	Latitude	Longitude
1	Bay Trail	LMK002	36:40.15	75:55.14
2	D pool fishing pier	LMK003	36:40.10	75:54.85
3	West dike above cross	LMK004	36:39.92	75:54.78
4	West dike at curve	LMK005	36:39.69	75:54.96
5	West dike opp hack tower	LMK006	36:39.48	75:54.83
6	West dike west inlet 2	LMK007	36:39.33	75:54.85
7	West dike west inlet 3	LMK008	36:39.11	75:54.80
8	West dike water control	LMK014	36:38.85	75:54.74
9	West dike west inlet 3	LMK015	36:38.68	75:54.69
10	West dike west inlet 4	LMK016	36:38.52	75:54.64
11	West dike water control	LMK024	36:37.91	75:54.34
12	False Cape S.P. entrance	LMK025	36:37.85	75:53.97
13	East dike between two ponds	LMK026	36:38.02	75:53.95
14	East dike	LMK027	36:38.21	75:54.00
15	East dike below A/B cross dike	LMK028	36:38.40	75:54.07
16	Middle A/B cross dike	LMK017	36:38.44	75:54.33
17	East dike above A/B cross dike	LMK018	36:38.64	75:54.16
18	East dike at curve	LMK019	36:38.79	75:54.22

The locations of the survey points are identical to those used during the 2000 Dike Route survey.

## Marshbird Callback Survey May 15, 2001 North Bay Route

SEQUENCE # 6247 48 49 6250 51 52 53 54 55 56 57 58 59 6260

[illegible]



# Marshbird Callback Survey May 15, 2001 North Bay Route

[illegible]

# Marshbird Callback Survey May 15, 2001 North Bay Route

	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	Pt 9	Pt 10	Pt 11	Pt 12	Pt 13	Pt 14	Totals
White-eyed Vireo	1														1
Red-eyed Vireo															
European Starling										1					1
Northern Parula	1														1
Yellow Warbler		1													1
Yellow-rumped Warbler															
Pine Warbler	1														1
Prairie Warbler															
Blackpoll Warbler															
Common Yellowthroat	1	1	3	1	2		1			1	1	1	1		13
Yellow-breasted Chat		1		1											2
Cardinal	1							1							2
Blue Grosbeak															
Indigo Bunting										1					1
Rufous-sided Towhee															
Chipping Sparrow															
Field Sparrow															
White-crowned Sparrow															
Song Sparrow															
Swamp Sparrow															
Bobolink															
Red-winged Blackbird		x	x	x	x	x	x	x	x	x	x		x	x	x
Eastern Meadowlark															
Boat-tailed Grackle															
Common Grackle				1	1					1		1	1	4	9
Brown-headed Cowbird	1			1											2
Orchard Oriole															
House Finch			2					2							4
American Goldfinch	1					1			1						3
Total Number species seen	9	11	5	9	7	5	4	6	5	7	3	8	6	6	38



CENNUM #	6261	62	63	64	65	66	67	68	69	6270	71	72	73	6274
	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	Pt 9					

[illegible]

# Marshbird Callback Survey May 31, 2001 North Bay Route

	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	Pt 9	Pt 10	Pt 11	Pt 12	Pt 13	Pt 14	Totals
Cedar Waxwing															
White-eyed Vireo															
Red-eyed Vireo															
European Starling						2	1		2						5
Northern Parula															
Yellow Warbler															
Yellow-rumped Warbler															
Pine Warbler	1														1
Prairie Warbler															
Blackpoll Warbler															
Common Yellowthroat		2	1	2	4	2		1	2	1	1	1			17
Yellow-breasted Chat	1	1		1											3
Cardinal	2	1						1							4
Blue Grosbeak		1													1
Indigo Bunting															
Rufous-sided Towhee	1														1
Chipping Sparrow															
Field Sparrow															
White-crowned Sparrow															
Song Sparrow									1						1
Swamp Sparrow															
Bobolink															
Red-winged Blackbird		x	x	x	x	x	x		x	x	x	x	x	x	x
Eastern Meadowlark															
Boat-tailed Grackle							1								1
Common Grackle	1				3		2	2			4	1	6	2	21
Brown-headed Cowbird															
Orchard Oriole			1	1											2
House Finch								6							6
American Goldfinch					1										1
Total Number species seen	10	12	6	7	8	7	6	11	8	2	6	7	7	3	37



# Marshbird Callback Survey May 31, 2001 North Bay Route

	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	Pt 9	Pt 10	Pt 11	Pt 12	Pt 13	Pt 14	Totals
Cedar Waxwing															
White-eyed Vireo															
Red-eyed Vireo															
European Starling						2	1		2						5
Northern Parula															
Yellow Warbler															
Yellow-rumped Warbler															
Pine Warbler	1														1
Prairie Warbler															
Blackpoll Warbler															
Common Yellowthroat		2	1	2	4	2		1	2	1	1	1			17
Yellow-breasted Chat	1	1		1											3
Cardinal	2	1						1							4
Blue Grosbeak		1													1
Indigo Bunting															
Rufous-sided Towhee	1														1
Chipping Sparrow															
Field Sparrow															
White-crowned Sparrow															
Song Sparrow									1						1
Swamp Sparrow															
Bobolink															
Red-winged Blackbird		x	x	x	x	x	x		x	x	x	x	x	x	x
Eastern Meadowlark															
Boat-tailed Grackle							1								1
Common Grackle	1				3		2	2			4	1	6	2	21
Brown-headed Cowbird															
Orchard Oriole			1	1											2
House Finch								6							6
American Goldfinch					1										1
Total Number species seen	10	12	6	7	8	7	6	11	8	2	6	7	7	3	37

CENNUM# 6275 76 77 78 79 6280 81 82 83 84 85 86 87 6288

[illegible]



## Marshbird Callback Survey June 19, 2001 North Bay Route

[illegible]

# Marshbird Callback Survey June 19, 2001 North Bay Route

	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	Pt 9	Pt 10	Pt 11	Pt 12	Pt 13	Pt 14	Totals
Cedar Waxwing															
White-eyed Vireo	1														1
Red-eyed Vireo															1
European Starling						1									1
Northern Parula															
Yellow Warbler															
Yellow-rumped Warbler															
Pine Warbler					1										1
Prairie Warbler															
Prothonotary Warbler		1													1
Blackpoll Warbler															
Common Yellowthroat		3	1	1	1		2	1	1	3		1		1	15
Yellow-breasted Chat		1					1								4
Cardinal		2	3	1	1			2	1						10
Blue Grosbeak															
Indigo Bunting		1													1
Rufous-sided Towhee															1
Chipping Sparrow															
Field Sparrow															
White-crowned Sparrow															
Song Sparrow															
Swamp Sparrow															
Bobolink															
Red-winged Blackbird	x		x	x	x	x	x	x	x	x	x		x		x
Eastern Meadowlark															
Boat-tailed Grackle					1								1		4
Common Grackle	3	3	3		4	1		4		1			3		22
Brown-headed Cowbird		1													1
Orchard Oriole			1												1
House Finch															
American Goldfinch						1		2							3
Total Number species seen	10	7	8	5	9	8	6	9	6	9	6	6	7	8	36



# GPS Locations of 2001 Marshbird Callback - North Bay Route

(NB)

Site	Description	GPS#	Latitude	Longitude
N1	Canal at edge of woods	LMK046	36:44.43	75:57.34
N2	Canal	LMK047	36:44.25	75:57.48
N3	Canal	LMK048	36:44.06	75:57.59
N4	Canal	LMK049	36:43.86	75:57.69
N5	Canal	LMK050	36:43.66	75:57.80
N6	Canal	LMK051	36:43.44	75:57.90
N7	Canal	LMK052	36:43.23	75:57.92
N8	Canal near intersection with Hell Point Creek	LMK053	36:43.02	75:58.03
N9	Hell Point Creek near mouth	LMK054	36:42.82	75:57.93
N10	North Bay shoreline	LMK055	36:42.98	75:57.72
N11	North Bay shoreline	LMK056	36:42.95	75:57.43
N12	West shore of cove off North Bay	LMK057	36:43.17	75:57.39
N13	East shore of cove off North Bay (duck blind)	LMK058	36:43.27	75:57.01
N14	North Bay near osprey nest	LMK059	36:43.08	75:56.90

